

Appl. No. 10/786,237  
Amendment dated May 3, 2007  
Filed with Request for Continued Examination

Confirmation No. 9171

### REMARKS

Applicants respectfully request entry of the Response and reconsideration of the claims. Applicants respectfully request reconsideration and withdrawal of the pending rejections under 35 U.S.C. § 102(b/e).

#### REJECTIONS UNDER 35 U.S.C. § 102(b/e)

Applicants have found that conventional spray devices such as conventional nozzles and spray balls used for liquids do not provide a desired spray pattern when delivering a multiple phase treatment composition when cleaning certain types of vessels (e.g., fermentation tanks, aging tanks, holding tanks, mixers, reactors, etc.). See the specification at page 8, line 15 through page 9, line 8, and page 1, lines 14-24. Conventional spray devices use back pressure to cause a liquid to spray outward. This does not work well with a multiple phase flow.

In contrast, the claimed delivery head provides for delivery of a liquid phase of a multiple phase composition to the interior walls of a vessel by avoiding a large back pressure in the spray head. The spray head can be designed so that the openings are sized to reduce back pressure. According to independent claim 8, a delivery head is characterized that provides a desired spray pattern for a multiple phase treatment composition. The delivery head can be visualized in Figures 2-3. The claimed delivery head has an open area in the head and can direct a flow rate for multiple phase treatment composition onto the sides of the vessels. The delivery head can include an attachment arm having a first end that attaches to the delivery arm and a second end that attaches to the spray diverter. As shown in the context of the delivery head, there is a plurality of attachment arms. The plurality of attachment arms provide openings through which multiple phase composition can flow to provide the desired spray pattern against the interior surface of the vessel (Specification at page 8, lines 9-14). Applicants respectfully assert that the cited art does not disclose the claim limitations regarding the claimed delivery head.

1. **U.S. Patent No. 6,365,005 (Schleiffarth)**

The Examiner rejects claims 8-19 under 35 U.S.C. § 102(b) as allegedly anticipated by U.S. Patent No. 6,365,005 (Schleiffarth). Applicants respectfully traverse this rejection.

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Applicants respectfully assert that Schleiffarth does not disclose each and every element as claimed. The Schleiffarth patent discloses a vapor compression distiller. Figures 2A and 5 of the Schleiffarth patent show a spray nozzle header and a clean-in-place nozzle. Full spray nozzles spray liquid or other suitable liquid into the vapor disengagement section to assist the disengagement of the vapor from mist and other liquid droplets. A plate pack mist eliminator with a steam scrubbing nozzle and demister pads with a steam scrubbing nozzle are placed above the full spray nozzles. Spray nozzles are also installed below the corrugated plate mist eliminator to be optionally used for introduction of chemical defoamer or for simple impingement liquid scrubbing of the liberated vapor. The nozzles are flow rated at 5% of the designed evaporation rate.

However, Schleiffarth does not describe any features of the recited nozzles. Schleiffarth focuses on describing a vapor compression distiller and does not describe the structural features of the recited nozzles. As such, Schleiffarth does not disclose the features of the delivery head recited in claim 8. Further, Applicants assert that the features of the delivery head recited in claim 8 are not inherent. These features do not necessarily flow from the generic teaching of a nozzle. Applicants respectfully assert that Schleiffarth does not disclose each and every limitation of claim 8. In view of the foregoing, Applicants respectfully request removal of the rejection under 35 U.S.C. § 102(b).

2. U.S. Patent No. 6,183,708 (Hei et al.)

The Examiner rejects claims 8-19 under 35 U.S.C. § 102(b) as allegedly anticipated by U.S. Patent No. 6,183,708 (Hei et al.). Applicants respectfully traverse this rejection.

Applicants respectfully assert that Hei et al. do not disclose each and every element as claimed. Hei et al. teach a method of treating peroxy compounds to reduce odors. In particular, this method can be used to remove odorous compounds from an atmospheric plant fluid effluent. Specifically, the invention relates to an odor reduction process using a finely divided or atomized peroxygen compound containing spray to treat gaseous or other effluent containing odor compounds with increased efficacy. The odor is reduced by reacting the effluent containing the odor compounds with an aqueous odor reduction compound. To perform this method in a plant

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setting, Hei et al. teach the use of an atomizer to perform this method, including pressure nozzles, two-fluid nozzles, and rotary devices (specification at col. 5, lines 50-54).

However, Hei et al. do not describe any features of the recited nozzles. Hei et al. focus on describing the method of reducing odors by peroxy treatment and do not describe the structural features of the tools used to implement this method. As such, Hei et al. do not disclose the features of the delivery head recited in claim 8. Further, Applicants assert that the features of the delivery head recited in claim 8 are not inherent. These features do not necessarily flow from the generic teaching of a nozzle. Applicants respectfully assert that Hei et al. do not disclose each and every limitation of claim 8. In view of the foregoing, Applicants respectfully request removal of the rejection under 35 U.S.C. § 102(b).

3. U.S. Patent No. 5,941,257 (Gruszczynski, II)

The Examiner rejects claims 8-19 under 35 U.S.C. § 102(b) as allegedly anticipated by U.S. Patent No. 5,941,257 (Gruszczynski, II). Applicants respectfully traverse this rejection.

Applicants respectfully assert that Gruszczynski does not disclose each and every element as claimed. Gruszczynski teaches a method for hydrodynamic cleaning of a piping system using two-phase flow. The specification details mathematical models and equations that are used to determine, *inter alia*, flow rate pressures, system pressures, and wall shear stress. Gruszczynski also discusses the water back pressure through the system and the total system back pressure in Examples 1 and 2. The water back pressure is 20 psig in both examples, and the total system back pressure is described as 25 psig and 35 psig. Gruszczynski does not disclose a back pressure of 10 psig. Applicants respectfully assert that a back pressure of 10 psig is not inherent as the described back pressures are specifically described as back pressures above 10 psig and do not appear to be within a margin of error. For at least this reason, Gruszczynski does not anticipate the instant claims.

Additionally, Gruszczynski does not describe any features of the recited nozzles. Gruszczynski focuses on describing the method of hydrodynamic cleaning of a piping system using two-phase flow and does not describe the structural features of the tools used to implement this method. Gruszczynski does not disclose the apparatus used to perform the disclosed method, and in particular, does not disclose a delivery head as recited in claim 8. Further,

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Applicants assert that the features of the delivery head recited in claim 8 are not inherent. These features do not necessarily flow from the generic teaching of a nozzle. Applicants respectfully assert that Gruszczynski does not disclose each and every limitation of claim 8. In view of the foregoing, Applicants respectfully request removal of the rejection under 35 U.S.C. § 102(b).

**4. U.S. Patent No. 5,783,245 (Simpson, II)**

The Examiner rejects claims 8-19 under 35 U.S.C. § 102(b) as allegedly anticipated by U.S. Patent No. 5,783,245 (Simpson, II). Applicants respectfully traverse this rejection.

Applicants respectfully assert that Simpson does not disclose each and every element as claimed. Simpson teaches a system for recovery of dairy product from a milk storage tank. Simpson discloses a cleaning spray device (140). Simpson states that the spray device would be understood by those skilled in the art (specification at col. 6, lines 10-12). There is no further description of the spray device. Simpson focuses on describing a method of applying a treated fluid to a milk plant/vessel to dislodge residual milk product from said plant/vessel and does not describe the structural features of the tools used to implement this method. Thus, there is not a description of the delivery head as recited in claim 8. Applicants contend that those skilled in the art would not envision the delivery head. As evidenced by the arguments herein, the art does not disclose a delivery head as instantly claimed. Applicants respectfully assert that the Examiner has not established that a single reference contains each and every limitation of the claims. Further, Applicants assert that the features of the delivery head recited in claim 8 are not inherent. These features do not necessarily flow from the generic teaching of a nozzle. Applicants respectfully assert that Simpson does not disclose each and every limitation of claim 8. In view of the foregoing, Applicants respectfully request removal of the rejection under 35 U.S.C. § 102(b).

**5. U.S. Patent No. 5,603,826 (Welch)**

The Examiner rejects claims 8-19 and under 35 U.S.C. § 102(b) as allegedly anticipated by U.S. Patent No. 5,603,826 (Welch). Applicants respectfully traverse this rejection.

Applicants respectfully assert that Welch does not disclose each and every element as claimed. Welch teaches a self-cleaning return pump system for use with a clean-in-place system

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for cleaning vessels. Welch does not describe nozzles or any sprays associated with the clean-in-place system. A solid liquid stream exits the separator from the bottom discharge port. The top discharge port may also discharge a solid liquid stream, an air stream, or a mixture of liquid and air, depending upon the mode of operation of the system. Substantially all of the air that enters from the eductor will be separated from the liquid stream in the separator, and the air or a mixture of air and liquid will be discharged from the separator top discharge port. After discharge, the air or a mixture of air and liquid is directed to the appropriate tank or drain within the C-I-P. A solid stream of liquid is discharged from the separator bottom discharge port to provide adequate feed and pump suction head for the return pump. The amount of liquid which is discharged from the separator top discharge port is about equal to the amount of solution which is fed to the vessel through the vessel feed line.

However, Welch does not describe, or even recite, a nozzle. Welch focuses on describing a self-cleaning return pump system and does not describe the structural features of the tools used to implement this method. Welch does not disclose any of the features of the claimed nozzle, or rather, Welch does not even disclose a nozzle as being used in the described method. Further, Applicants assert that the features of the delivery head recited in claim 8 are not inherent in a clean-in-place system. These features do not necessarily flow from the generic teaching of a clean-in-place system. Applicants respectfully assert that Welch does not disclose each and every limitation of claim 8. In view of the foregoing, Applicants respectfully request removal of the rejection under 35 U.S.C. § 102(b).

**6. U.S. Patent Application Pub. No. 2004/0007255 (Labib et al.)**

The Examiner rejects claims 8-19 under 35 U.S.C. § 102(e) as anticipated by U.S. Patent Application Pub. No. 2004/0007255 (Labib et al.). Applicants respectfully traverse this rejection.

Applicants respectfully assert that Labib et al. do not disclose each and every element as claimed. Labib et al. disclose an apparatus and method for cleaning passageways with a two-phase mixture of gas under pressure and an aqueous cleaning solution. Labib et al. state that droplet size is an important factor in the disclosed cleaning process with an optimal droplet size of 30  $\mu\text{m}$  to 200  $\mu\text{m}$ . Passageway diameters from 150  $\mu\text{m}$  to more than 12 cm can be cleaned

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with the two-phase flow system taught by Labib et al., including cleaning of contaminants (e.g., biofilms, food residues, spores, etc.). Further, Labib et al. teach that a condition of complete coverage of the surface with droplet impact needs to be achieved, along with creation of droplets of more or less uniform size, so as to create a sufficient localized shear and other mechanical stresses when they impact the surface of the passageway.

As the Examiner states, Labib et al. disclose a nozzle to generate droplets for the two phase flow at paragraph [0158]. However, there is no disclosure regarding a delivery head as claimed. Labib et al. do not disclose any of the features of the delivery head recited in claim 8. Further, Applicants assert that the limitations of the delivery head recited in claim 8 are not inherent from a generic recitation of a nozzle. The claimed features do not necessarily flow from the generic teaching of a generic nozzle. Applicants respectfully assert that Labib et al. do not disclose each and every limitation of claim 8. In view of the foregoing, Applicants respectfully request removal of the rejection under 35 U.S.C. § 102(b).

7. U.S. Patent No. 6,454,871 (Labib et al.)

The Examiner rejects claims 8-19 under 35 U.S.C. § 102(b) as anticipated by U.S. Patent No. 6,454,871 (Labib et al.). Applicants respectfully traverse this rejection.

Applicants respectfully assert that Labib et al. do not disclose each and every element as claimed. Labib et al. teach a method of cleaning surfaces using a mixed phase cleaning mixture of an aqueous solution and a flow of gas, wherein the flow of gas produces droplets of liquid. The mixed phase flow along a surface creates shear or impact stresses to remove contaminants (e.g., biofilm, debris, etc.). Specifically, the method taught by Labib et al. is a method of cleaning a surface or passageway that is long and narrow. Labib et al. describe using the methods to clean dental instruments, tubing, filters, and a biopsy device (specification at Examples 1-12; col. 22-29).

Labib et al. do not describe nozzles or any sprays associated with the method(s) taught in the '871 patent. Labib et al. do not describe, or even recite, a nozzle. Labib et al. focus on describing a cleaning method and do not describe the structural features of the tools used to implement this method. Labib et al. do not disclose any of the features of the claimed nozzle, or rather, Labib et al. do not even disclose a nozzle as being used in the described method. Labib et

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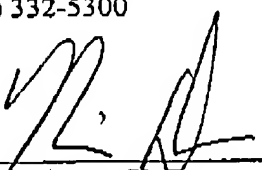
al. focus on cleaning long and narrow passageways. Further, Applicants assert that the features of the delivery head recited in claim 8 are not inherent in a cleaning method utilizing a mixed phase cleaning mixture. These features do not necessarily flow from the generic teaching of a mixed phase cleaning mixture. Applicants respectfully assert that Labib et al. do not disclose each and every limitation of claim 8. In view of the foregoing, Applicants respectfully request removal of the rejection under 35 U.S.C. § 102(b).

**Summary**

In view of the above amendments and remarks, Applicant respectfully requests a Notice of Allowance. If the Examiner believes a telephone conference would advance the prosecution of this application, the Examiner is invited to telephone the undersigned at the below-listed telephone number.

Respectfully submitted,

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Date: May 3, 2007  
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